

FIG. 2

PROCESSOR TYPE	SPECULATION PREDICTED TO BE SUCCESSFUL OR DESIRABLE	FORK?	JOIN?	SPECULATION POTENTIALLY SUCCESSFUL OR DESIRABLE	UPDATE PREDICTOR?
NON-SUPPORTING	N/A	NO OPERATION	NO OPERATION	N/A	NO OPERATION
SUPPORTING	NO	NO OPERATION	NO OPERATION	COMPLETE VALUE	UPDATE
SUPPORTING	YES	FORK	JOIN	COMPLETE VALUE	UPDATE

FIG. 3

```
main_routine()
{
    initialize_main_compute();

fork_point:
    fork_executed          = fork (speculative_routine, join_point);

    main_pre_join_point_compute();

    join_point:
        if (fork_executed) join_nonspeculative(speculative_routine, join_point);

    post_speculation_point:
        speculation_status = determine_speculation_status();

        speculative_results_valid      = (fork_executed && successful(speculation_status));
        speculative_computation_desirable = desirable(speculation_status);

        if (speculative_results_valid) consume_speculative_results();
        else                          compute_nonspeculative_results();

        update(fork_point, speculative_computation_desirable);

        complete_main_compute();
    }

    speculative_routine(join_point)
    {
        initialize_speculative_compute();
        compute_speculative_results();
        join_speculative(speculative_routine, join_point);
    }
}
```

FIG. 4A

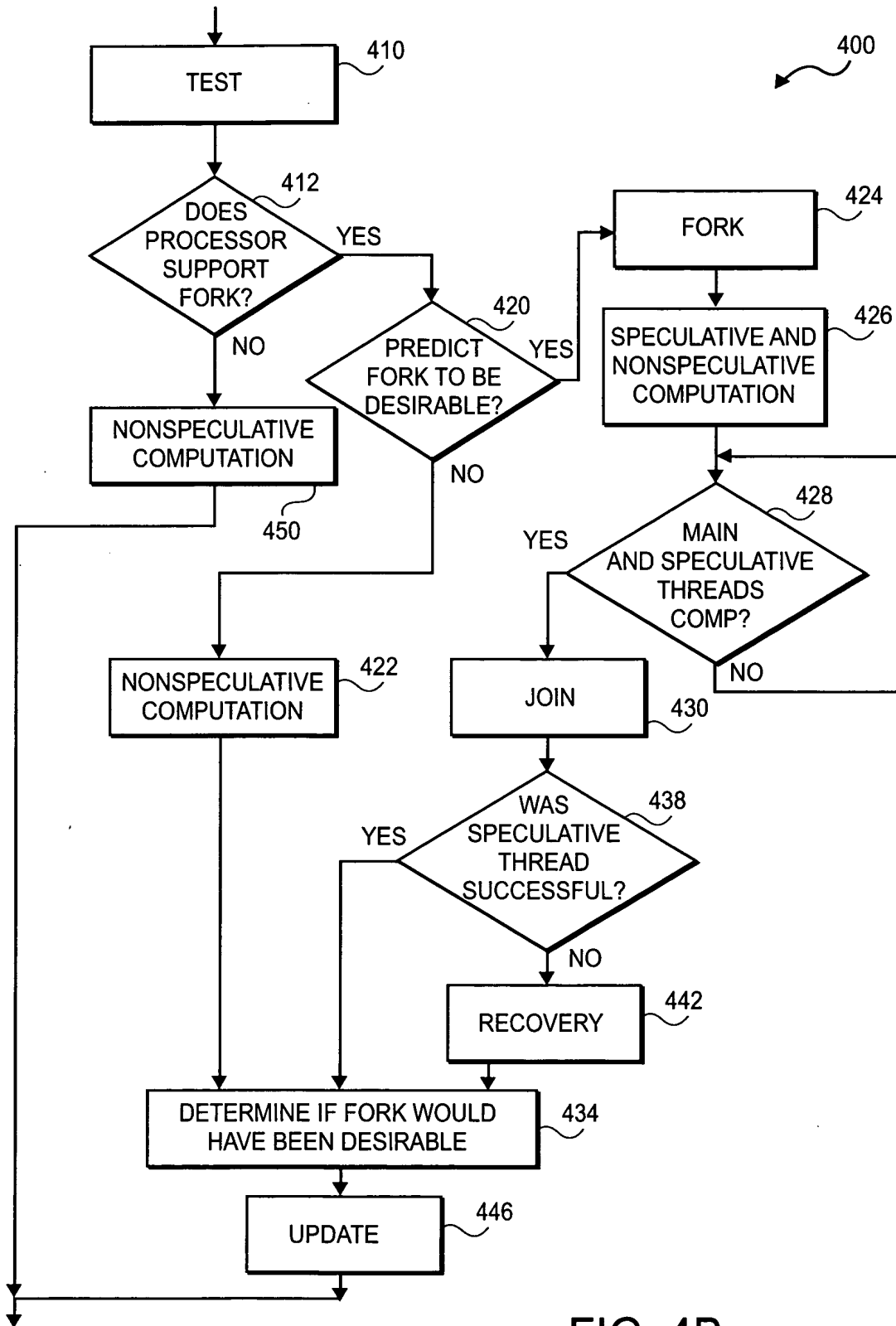
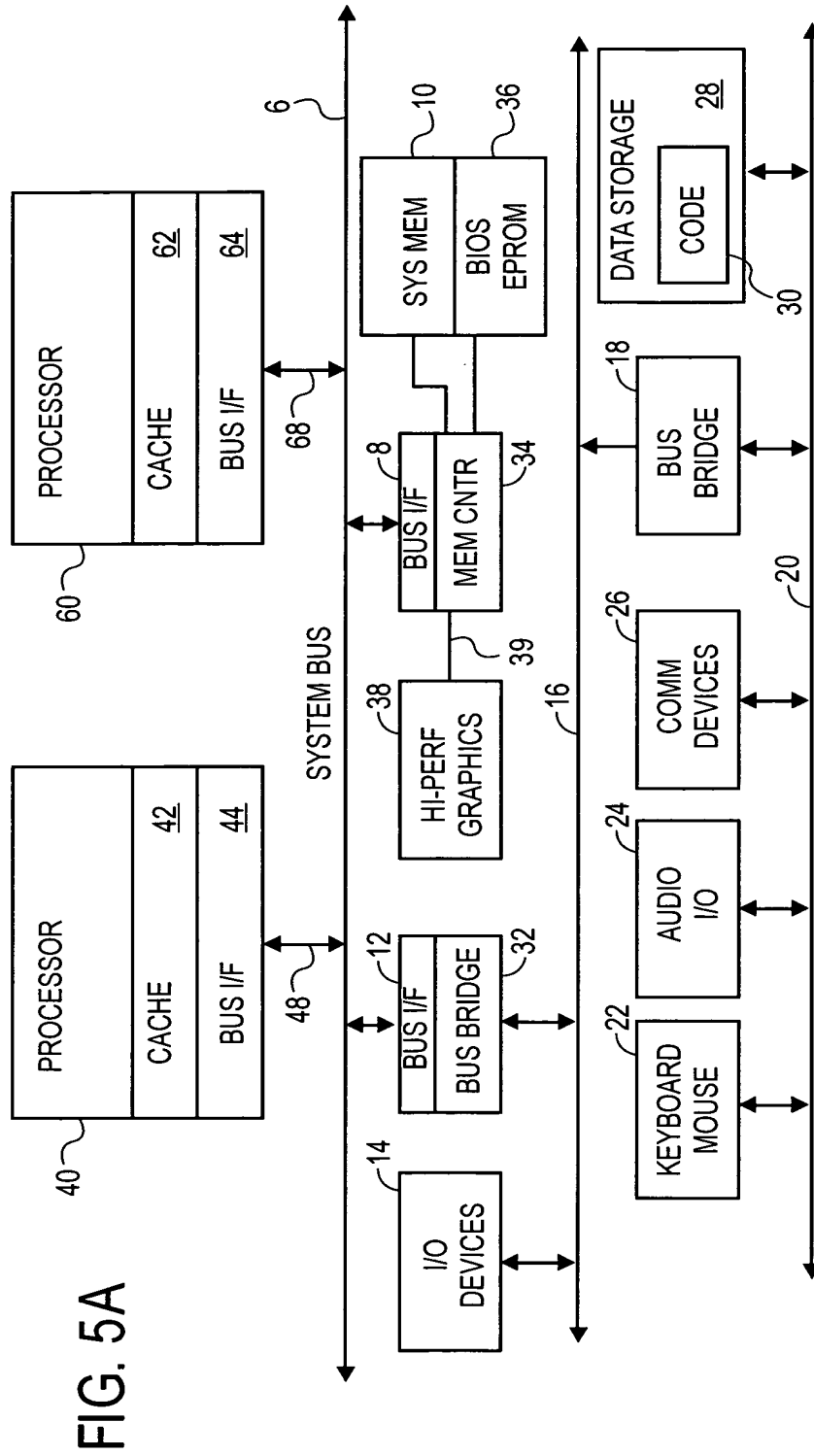


FIG. 4B



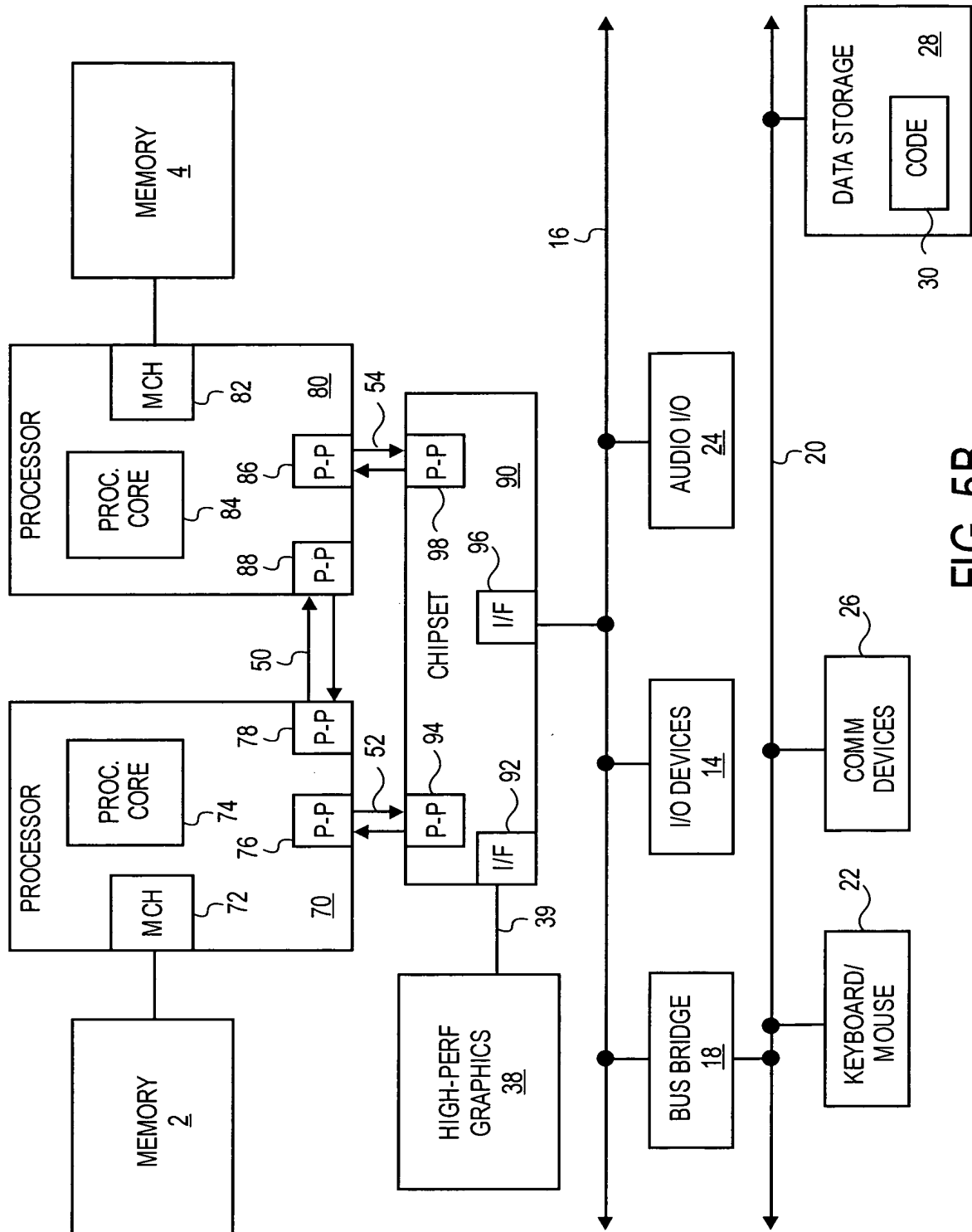


FIG. 5B